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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/830,617	08/13/2001	Wolfgang Thiele	60210	9875

7590

02/11/2005

FMC Corporation  
Patent Administrator  
1735 Market Street  
Philadelphia, PA 19103

EXAMINER

PHASGE, ARUN S

ART UNIT	PAPER NUMBER
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1753

DATE MAILED: 02/11/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

09/830,617

Applicant(s)

THIELE ET AL

Examiner

Arun S. Phasge

Art Unit

1753

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 16-33 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 16-19, 21-24, 26-30, 32-33 is/are rejected.
- 7) ☐ Claim(s) 20,25 and 31 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |  |
|--|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)  | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)            |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>1/17/02</u> . | 6) <input type="checkbox"/> Other: ____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 112*

Claims 21, 25, 27 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

It appears that the "reduced iron (III) sulfate" should be "iron(II) sulfate", since reduced ferric sulfate would be ferrous sulfate.

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 16 is rejected under 35 U.S.C. 102(b) as being anticipated by Young et al. (Young), U.S. Patent 5,622,615.

Young discloses the claimed method for pickling copper the method comprising the steps of, pickling the copper with a pickling solution to form a spent pickling solution, regenerating the spent solution and introducing the regenerated

solution into the pickling solution wherein the pickling solution comprises sulfuric acid and ferric sulfate, the spent pickling solution comprises dissolved copper and the spent solution is regenerated electrolytically by cathodically precipitating the dissolved copper and anodically regenerating the ferric sulfate (see col. 4, lines 30-50, col. 6, lines 22-55). The solution would have a redox potential.

Therefore, since the reference discloses each and every limitation, the claim is anticipated.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.

4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

Claims 17-19, 21-24, 26-30, 32-33 are rejected under 35 U.S.C. 103(a) as being unpatentable over Young as applied to claims above, and further in view of Thiele et al. (Thiele), German patent application 4137022A1 (English abstract).

The Young patent discloses ranges of concentrations, which appear to include the ranges claimed (see col. 6, lines 55-67). The Young patent further discloses the deposition of metal on the cathode in compact form (see abstract).

The Young patent does not disclose the use of peroxodisulfate added to the pickling solution or the regeneration of the pickling solution in a divided cell, said cell divided by ion exchange membrane.

The Thiele reference is cited to teach the use of the peroxodisulfate in the pickling solution to etch copper (see abstract). The reference further discloses the use of a divided to cell to precipitate the copper at the cathode and to regenerate the peroxodisulfate at the anode (see abstract, figure 2 and column 5, lines 32-35). The reference further discloses the sequential feeding through the cathode followed by the feeding through the anode compartment (see figures 1 and 2). The metallic copper is separated from the peroxodisulfate cell in powder form (see figure 2 and col. 6, lines 23-36).

Consequently, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the disclosure of the Young patent with the teachings of the Thiele reference, because the Thiele reference teaches that such addition of peroxodisulfate allows the optimum etching of copper and that the use of the divided cell allows the deposition of copper and the regeneration of the peroxodisulfate.

### *Double Patenting*

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 16-19, 21-24, 26-30, 32-33 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-7 of U.S. Patent No. 6,168,670 in view of Young applied as above.

The prior patent discloses the claimed method for pickling copper or a copper alloy comprising the steps of pickling the copper with a pickling solution and producing a spent pickling solution, regenerating the spent pickling solution to produce a regenerated pickling solution and introducing the regenerating solution into the pickling solution, wherein the pickling solution comprises sulfuric acid and iron sulfate, the spent solution comprises dissolved copper and the spent solution is regenerated electrolytically by cathodically reducing the solution to deposit copper and anodically oxidizing the reduced solution to regenerate the solution (see claim 1). The reference further discloses the use of peroxodisulfate (see claim 3).

The reference does not disclose the reduction and oxidation of the iron sulfate in the solution during the pickling and electrolysis as claimed. The Young patent is cited to show that the iron sulfate in solution would be reduced and then be regenerated as claimed (see col. 4, lines 30-50).

Therefore, the invention as a whole would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the claims by the disclosure of the Young patent, because the Young patent teaches the reduction and regeneration of the iron sulfates in the solution.

*Allowable Subject Matter*

Claims 20, 25 and 31 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: none of the prior art of record fairly discloses or renders obvious the claimed method, in particular the step of measuring the redox potential of the pickling bath and adapting the redox potential of the bath by metering in the regenerated pickling bath. The use of a particular redox potential for the copper-nickel alloy would not be obvious and is not disclosed in the prior art.

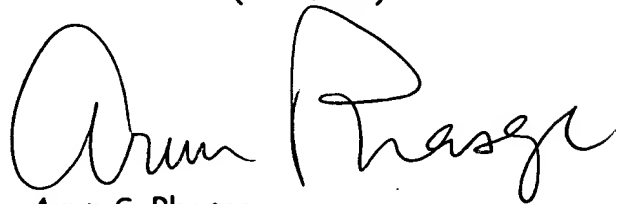
*Conclusion*

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Arun S. Phasge whose telephone number is (571) 272-1345. The examiner can normally be reached on MONDAY-THURSDAY, 7:30-6:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nam X Nguyen can be reached on (571) 272-1342. The fax

phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Arun Phasge', with a large, stylized 'P'.

Arun S. Phasge  
Primary Examiner  
Art Unit 1753

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